

AN
INQUIRY HOW FAR
CONSUMPTION IS CURABLE :
WITH OBSERVATIONS ON THE TREATMENT,
AND
CASES
ILLUSTRATING THE EFFICACY OF
COD - L I V E R O I L .

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AN INQUIRY INTO THE CURABILITY OF PULMONARY CONSUMPTION;

WITH OBSERVATIONS ON ITS TREATMENT, AND CASES ILLUSTRATING
THE EFFICACY OF COD-LIVER OIL.

THE examination of the question, how far Consumption is a curable disease, is a subject which has scarcely received from medical men the attention it deserves, when we consider the very general prevalence of this disease, and the amount of mortality it occasions. The profession, as well as the public, have been so strongly impressed with the belief that the disease is necessarily fatal, that any one who would have maintained the opposite opinion would, until very recently, have been looked upon only in the light of a boasting pretender. Notwithstanding this, pathological investigations have shown, in the clearest manner, that recovery often does take place from this disease; and ever since the able investigations of Laennec proved that this may occur from the spontaneous efforts of nature, subsequent pathologists have been accumulating facts, proving more fully the correctness of his views and statements. Auscultation and percussion, by enabling us to separate those diseases from Consumption which most nearly resemble it, and to trace the successive steps of recovery on living individuals, have completed what was required, in order to establish the point. I believe that medical men are not generally aware of the amount of strong evidence that exists in reference to the curability of Phthisis; but I hope to bring forward in this paper a sufficient amount of facts to prove, that it admits of recovery in several ways, and that we should increase our efforts to save consumptive patients, having now, in cod-liver oil, at least one remedy which possesses an undoubted power over this destructive disease.

Let us, before entering upon this subject, inquire, as briefly as possible, what light has been thrown on the pathology of tubercle, and the changes it undergoes during absorption and transformation, by recent chemical and microscopical researches. As regards the blood itself,

from which it is an exudation or secretion, the only change of any importance which seems to have been yet discovered, is an increase in the quantity of fibrin; but this does not seem due so much to the tuberculous diathesis, as to the inflammation which accompanies the softening of tubercle. The proportion of blood corpuscles is generally below the standard of health; but Becquerel and Rodier¹ have shown that this is a change common to all chronic diseases, and much more marked in chlorosis.

Analysis of tubercle itself has shown, that it consists chiefly of albumen, with a little casein and fibrin, a considerable quantity of fat, and some extractive matters, probably the creatine and creatinine discovered by Liebig² in the muscles and urine. Dr. Madden thinks that the abundance of extractive matters shows, that there is either diminution of healthy excretion, or undue activity of the decomposing forces. The former he has taken as an indication for the use of means to promote the function of the excreting organs—the skin, liver, and kidneys. Crude yellow tubercle contains only about 2 per cent. of earthy salts, and 98 per cent. of animal matter; but, when it has undergone the cretaceous transformation, the proportions are reversed, the quantity of animal matter being about 3 per cent., and the remainder consisting of earthy salts, carbonate and phosphate of lime, with a little muriate of soda.

Tubercle being an exudation from the blood of a part of the liquor sanguinis, imperfectly vitalized, and therefore less highly organized than the fibrinous exudations of healthy inflammation, we naturally expect to find—what chemists have discovered in regard to its ultimate analysis—that it differs very little in composition from the proteine compounds.³ These facts, it must be confessed, are almost negative, as regards any practical value.

Microscopical researches have thrown more light on the pathology of tubercle; and we have thus derived some information as to its primary seat, its structure, its relations to surrounding parts, and to other deposits of a healthy or morbid character. Dr. Carswell⁴ thought that the air-cells were the usual seat of tubercles in the lungs; and that, whenever mucous membrane formed a part of an organ, it was either the exclusive seat, or more extensively affected than any of the other tissues. There seems to be much reason to believe, that the air-cells are the common, though not the exclusive, seat of tubercular deposit. I lately examined a specimen of crude tubercle, where it was beautifully seen filling the cells. Mr. Rainey⁵ has described its appearance in the air-cells, and says, that it may sometimes be seen filling only one part of a single cell. He has endeavoured to show that the cells are not lined with mucous membrane, but the fact observed by Hassall, of the epithelium extending into them, appears to show that they are lined by this membrane. Different microscopical observers have shown that it may also be deposited in the intercellular tissue between the air-vesicles: in fact, anywhere external to the vessels; and Dr. C. J. B. Williams thinks it probable, that it may even form within the blood-vessels themselves.

¹ Recherches sur la Composition du Sang.

² On the Chemistry of Food.

³ BENNETT. Northern Journal, 1846.

⁴ Illustrations of the Elementary Forms of Disease.

⁵ Medico-Chirurg. Trans. 1845.

Microscopical examination of tubercular matter has shown that it consists of corpuscles, which are characteristic of tubercle, and of granules and minute molecules. The corpuscles have no nuclei, and are considered to be undeveloped cells, which approach more or less nearly to the exudation or plastic cells of healthy inflammatory deposits. The miliary tubercle has some appearance of cells and fibres, but the crude yellow tubercle has no appearance of organization, and, during softening, the corpuscles swell, burst, and discharge granules. Dr. Williams's view—that lymph, tubercle, and pus, are only modifications of each other—shows how nearly tubercular deposition and inflammation must approach each other; and pathologists seem now agreed that they are closely allied processes, both being modified states of nutrition. Growth, nutrition, inflammation, and scrofulous diseases, are, observes Dr. Addison, analogous phenomena.

Besides the objects already described, there are also seen in tubercles the filamentous remains of the air-cells, fat globules, which increase in quantity as the softening takes place, pus, and other exudation products of inflammation, epithelium cells; and in cretaceous tubercles, large dark particles, and crystals of cholesterine.

Of these facts, furnished by microscopical examination, perhaps the most important, in reference to our present inquiry, is that of the tubercular corpuscles being most nearly allied to the fully developed cells of healthy inflammatory products, from which they appear to recede, and assume more of a granular aspect, in proportion as they become yellow and cheesy, or soften. "The miliary tubercle", Dr. C. J. B. Williams observes,¹ "differs from fibrin, not in kind, but in degree, of vitality and capacity of organization"; and this proves to us what experience had previously taught—the importance of removing the complication of inflammation or congestion of the lungs, in the prevention, as well as treatment, of phthisis.

In examining the *pathological facts* bearing upon the question of curability, I will first call attention to the circumstance, that many medical men, seeing their patients frequently die of phthisis, have become so incredulous of the possibility of recovery, that when they have seen a patient recover after having presented the usual symptoms, they have distrusted their diagnosis, and have taken the fact of recovery as a sufficient proof that the disease could not have been tubercular Consumption. Pathological investigations show that such is a most erroneous mode of forming an opinion, and prove also, that many persons, who have never had more than a moderate amount of pectoral symptoms, must have recovered from this disease. Lacnec, in a chapter in his work, entitled, *Examen de cette question : la guérison de la phthisie est-elle possible ?* had the merit of first proving that phthisical persons may recover, by the cretaceous transformation of tubercular matter, as well as by the cicatrization of cavities. He investigated the subject very fully, and detailed ten cases, in three of which the healing of cavities was traced by the stethoscope, and recovery took place after all the worst symptoms had supervened. In seven other cases, where the

¹ WILLIAMS, C. J. B., M.D. Principles of Medicine, p. 386.

patients were phthisical, but died of other diseases, he ascertained how recovery might take place by absorption of crude tubercles, and transformation into cretaceous or calcareous concretions ; or by the softening and evacuation of tubercular matter, and the lining of the cavity so formed by a false membrane of cellular fibrous or cartilaginous texture, and also the complete disappearance of the cavity by the formation of a cicatrix. These facts were confirmed by Andral ; and even Louis, who does not take by any means a favourable view of the curability of phthisis, and is more sceptical than most men as to any good effect from medical treatment, relates three cases of recovery ; one in a man, 45 years of age, who, after presenting all the usual symptoms, as well as the physical signs, and keeping his bed for six months, recovered, and returned to his occupation ; the second, in a man, 50 years of age, who had cavernous respiration and pectoriloquy ; and the third, in a gentleman of rank, who consulted him several times, during a period of eight years, for trifling attacks of acute pulmonary catarrh, and afterwards died of a painful affection of the urinary passages. It was then discovered that he had a cavity at the summit of the right lung, and near to it two tubercles. This patient enjoyed robust health, with the exception of being subject to attacks of cold, and would probably have continued to do so, but for the other disease of which he died.

M. Rogée, in an able paper on the Curability of Phthisis, in the *Archives Générales de Médecine* for 1839, has proved in the clearest manner, that the *chalky*, as well as the *calcareous concretions*, resembling small stones, which are so often found in the lungs, are the result of the transformation of tubercle. There are many facts which prove this ; the situation of these concretions, generally at the summit of the lung, sometimes in the midst of a group of tubercles, and often in a cavity from which the greater part of the tubercular matter has been evacuated. Tubercles are also sometimes found evidently undergoing this transformation, presenting the appearance of having become smaller, and being more opaque and whiter than other deposits in the same, or in the other lung. If further proof were wanted, it might be found in the fact, that crude tubercle, when dried, assumes a chalky appearance, similar to that of these concretions. I had last summer an opportunity of seeing tubercular matter in great quantity in every stage of transformation, in a woman who died in the Liverpool Infirmary of tubercular peritonitis. The abdominal cavity contained a very large quantity of a matter like mortar, and the mesenteric glands exhibited almost every form of tubercular disease, some being in the state of crude, cheesy tubercle, and others undergoing transformation. The liver was also fatty in this case ; a fact tending to show that the fatty degeneration of the liver, which so often occurs in Pulmonary Consumption, cannot be ascribed to the function of respiration being interfered with, but that it bears a relation to tubercular disease generally, and is most frequently found in Pulmonary Consumption, only because the lungs are the organs in which tubercles are oftenest deposited in abundance.

It was at one time regarded as doubtful, whether tubercles could be absorbed ; and Andral¹ noticed the wrinkled appearance which they sometimes assume, as showing the possibility of their being thus removed.

¹ Précis d'Anatomie Pathologique, tom. iii, p. 545.

On this point there cannot now be any doubt, but the conditions which favour absorption require further investigation. The miliary granulations, which Laeunec considered the first stage of tubercle, and in which opinion he has been confirmed by Louis, are believed by Rokitauský to be, in many cases, merely a kind of fibrin. He considers that this form or stage of tubercle may undergo a kind of metamorphosis, which he calls *obsolescence*. "After the tubercle has passed through its condition of crudity, it loses its shining appearance and increases in density, becomes converted into a small hard lump, and then shrinks into a tough amorphous or slightly horny mass-cornification. It forms the basis of a complete destruction or death of the tubercle, and no further metamorphosis can take place."¹

The softening of tubercle, Dr. Williams thinks, is promoted either by a deficient supply of blood, which does not maintain its imperfect vitality, or by an undue flow or accumulation of it exalting chemical affinities in a material which has no vital power of resistance.

When crude tubercle undergoes the cretaceous transformation, the animal matter must be removed by the vessels absorbing it; but the quantity of earthy matter is so much greater than what is contained in crude tubercle, that there must be a secretion of earthy salts at the same time, and this sometimes appears to take place into empty cavities also. Dr. Hughes Bennett considers the tendency of tubercular matter to disintegrate as highly favourable to absorption, if fresh deposits could be prevented; and Rokitansky observes, in reference to cretification, that it occurs as a secondary change, never attacking tubercle in its original form, but confining itself to the dissolving and dissolved blastema. It is easy to conceive that, when the corpuscles of tubercle have broken down into the granular state, they must be more within the absorbent power of the vessels; but the fact of the yellow crude tubercle being sometimes observed undergoing cretaceous change without softening, would seem to show, that it is at least not necessary that it should undergo such a degree of disintegration as that which immediately precedes the evacuation of tubercular matter. It is worthy, however, of remark, that transformation commences, as softening has usually been observed to do, at the centre of tubercles; and Dr. Valleix² has observed, that we sometimes find a tubercle having a hard calcareous concretion at the centre, round this cretaceous matter, and at the circumference a layer of tubercular matter. Boudet affirms, that transformation may take place in all the phases of their evolution.³

Such are some of the chief facts relating to the curability of Consumption by absorption and transformation of tubercle; but pathological researches furnish us with further evidence of the possibility of recovery in a more advanced stage, in the discovery of cicatrices produced by the healing of cavities at the summit of the lungs. Rogée has described four kinds,—those with persistence of the cavity; those in which the cavity contains some chalky or calcareous matter; those cicatrices which are fibro-cartilaginous; and those of cellular structure. There is usually some depression, or puckering, of the summit of the lung, where these

¹ British and Foreign Medico-Chirurgical Review, vol. i, 1848.

² De la Curabilité de la Phthisie pulmonaire, *Archives Générales de Médecine*, 1841.

³ Recherches sur les transformations des tubercles: *Comptes Rendus*, 1843.

cicatrices are discovered, and the surrounding pulmonary tissue is often of a dark colour and indurated. These appearances may be regarded as some evidence of the former extent of the disease. Dr. Carswell has observed, that there may remain only a small globular oval or even linear portion of fibrous or fibro-cartilaginous tissue in a portion of the lung, where, from the extensive puckering around it, there must formerly have existed an evacuation of considerable extent. The healing of cavities has been observed in every stage; and it would seem, that the disease may be arrested, or at least become quiescent, even after it has produced great disorganization of the lungs, of which we have a remarkable example in a case related by Dr. Kingston.¹

There are few medical men, who are in the habit of observing the *post-mortem* appearances in the lungs, who have not had opportunities of seeing cretaceous tubercles, and even the less frequent appearance of cicatrices and puckerings at the summit of these organs. The facts, indeed, are so palpable, that they have never been disputed; but they have been looked upon rather as rare and curious examples of what nature can do where art has failed, than as important practical facts, which should lead us to observe carefully the favourable circumstances under which the changes are brought about, with the view of arriving at a more successful method of treatment.

These appearances are not, however, by any means rare, indeed they are very common. Rogée found that of one hundred aged persons, who died at the Salpêtrière, there were fifty-one of this number who had concretions and other traces of tubercular disease of the lungs. In five of the cases he also found the cicatrices of the cavities which had healed; and he states, that in the course of a single year, he had been able to collect ten or twelve incontrovertible examples of the same kind. "J'insiste sur ce fait de fréquence, car c'est là que gît, à mes yeux, le point capital, le côté nouveau de la question. Les médecins instruits d'aujourd'hui ne nient guère qu'on ait vu *quelquefois* la phthisie guérir; mais pour eux cela tient du miracle tant c'est rare: ils n'osent jamais l'espérer. Puisse-je avoir réussi à convaincre que la guérison est assez commune quand la maladie n'est pas fort avancée, et qu'on a droit de la chercher avec espoir."² In 197 subjects, Boudet found ten with cavities completely healed; and within one year, he also collected fourteen cases of recovery from phthisis.

Dr. Hughes Bennett³ also found in seventy-three bodies which he examined, that there were concretions and puckerings in twenty-eight. He also ascertained that these traces of the removal of tubercles are most common in elderly persons; for, in the twenty-eight cases, he found puckerings and concretions in only three individuals of the age of eighteen, in six between that age and forty, and in nineteen after that epoch of life. Dr. Stokes, when he published his work, was strongly in favour of the view, that patients sometimes recovered from phthisis; and he laid down the favourable indications, which he considered to justify the medical man in attempting what he called the curative treat-

¹ Medico-Chirurg. Trans., vol. xx, 1837.

² Essai sur la Curabilité de la Phthisie pulmonaire, etc. *Archives Générales de Médecine*, 1839.

³ BENNETT (J. Hughes, M.D.), Frequent and Spontaneous Cure of Pulmonary Consumption. *Edinburgh Med. and Surg. Journal*, 1845.

ment. Dr. Williams has also argued in support of the curability of phthisis, and has stated that he found phthisical lesions in the lungs of half the adults beyond the age of forty that he had examined, and that nature resists the progress, and limits and circumscribes the extent of the disease. I shall also have occasion to allude to the valuable facts of a much stronger nature, which he has since published, in reference to the efficacy of cod-liver oil.

These pathological observations are, as Louis has remarked, "assuredly of immense importance", and they form a body of facts which do not admit of being controverted. But it may be said, that the disease had in such cases been of only limited extent, and had not presented the ordinary symptoms, but been latent. A sufficient number of cases have, however, now been accurately observed during their course, and up to complete recovery, to disprove such a statement. Consumption is a disease, the diagnosis of which is more difficult than that of most others; and, though stethoscopic examination has assisted pathological investigations, more especially in demonstrating the occurrence of recovery by the healing of cavities, yet we know that in the earliest stage, when we have reason to suppose that tubercles admit most readily of being removed, neither the symptoms nor the stethoscopic signs furnish us always with undoubted evidence of their existence; and hence some doubt must often hang over the precise nature of such cases. There is reason therefore to believe, that much evidence of the curability of Consumption, which we would possess, were it not for the difficulty of diagnosis in the earliest period, is in this way entirely lost. The number of cases in which the cretaceous transformation of tubercles has been found, so far exceeds those in which cicatrices have been discovered, that this is proved not to be a mere speculative assumption; and we can scarcely therefore avoid the conclusion, that many, who have suffered to a moderate extent from cough and other pulmonary symptoms, have really recovered from the early symptoms of consumption.

The limits of this paper prevent me from entering into an examination of the *symptoms* and *physical signs* of the early stage, for the purpose of proving this more fully, and of showing what diseases we are apt to confound with it. There are, however, one or two important points which I shall briefly notice. The symptoms furnished directly by the condition of the lungs themselves in phthisis, are, cough, expectoration of different kinds of sputa, shortness of breath, pain, and hæmoptysis. Now all of these symptoms, with the exception of the last, derive their value and signification entirely from their combination with other symptoms, and with physical signs. It is otherwise, however, with hæmoptysis, which is alone the most certain of all the symptoms of tubercle in the lungs, provided the patient has not received any injury of the chest, is free from disease of the heart, and, if a female, is not suffering from sudden suppression of menstruation. Yet it very often happens that we see patients recover, and enjoy a fair share of health, after having had cough and hæmoptysis.¹ Of the symptoms arising from disorder of other functions than that of the lungs, the most important are hectic fever, perspirations, emaciation, and diarrhœa.

¹ LOUIS, (P. C. A., M.D.) *Researches on Phthisis*, p. 169.

These also derive much of their value and signification from being combined with some of the preceding. Perspirations are very rarely absent during the course of this disease; and I believe that loss of flesh always occurs, to a greater or less extent, when tubercles are in an active state. We may observe, then, that cough of some standing, night-sweats, and loss of flesh, constitute a group of symptoms which, in the majority of cases, indicate the presence of tubercular disease; and, if to these we can add hæmoptysis, we combine those symptoms which afford the most certain evidence of the presence of tubercular disease of the lungs.

Examination of the chest with the stethoscopo has furnished the counterpart of some of the proofs of the curability of Consumption, which have been derived from pathology, more especially in reference to the healing of cavities; and it often enables us to discover the disease, long before it can be detected by symptoms alone. It is, however, a well-ascertained fact, that tubercle must be deposited to a considerable extent, before it can be discovered by the signs which it occasions directly by its own presence, such as dulness; and it often happens that, before it gives any decided evidence of its presence by producing consolidation, the local irritation it has excited may occasion crepitation, or sibilant, or other rhonchi. Now it has been shown by Louis (see his observations on case 56), and others, that when these signs of bronchitis or pneumonia are confined to the apex of one lung, they indicate, with great certainty, the presence of tubercles. I have seen several cases, in which the signs of bronchitis (sibilant and mucous rhonchi, with a scarcely appreciable amount of dulness), were thus confined to the summit of one lung, and where recovery took place. Such cases, I think, I have been justified in regarding as recoveries from the early stage of phthisis.

If the facts and arguments which I have now advanced to prove the curability of Consumption, have appeared wanting in sufficient foundation, I would now refer, in confirmation of these views, to the valuable *statistical proofs* furnished by the able Report of the Hospital for Consumption.¹ The Report shows, as we might expect, that the most favourable results have been obtained in the first stage; and of 187 cases in this stage, it appears that seventy-five, or nearly one half, were much relieved. In eighteen cases, or more than ten per cent., the disease was arrested; and the term arrest is defined as implying that all, or nearly all, the symptoms of the disease had disappeared, the patients feeling themselves well, and being able to pursue their ordinary occupations. The report also states, that in some of these, the evidence of local mischief had greatly diminished, and in a few had disappeared; such patients being, in fact, scarcely in a worse position than they were before the attack. Of fifty-three cases in the second stage, the disease was arrested in two. Of 295 cases in the third stage, it was arrested in ten cases. The Report observes: "Viewing these results collectively, without reference to age or sex, we find that benefit is conferred in 36 per cent. of the cases, material relief in nearly 25 per cent.; in nearly 6 per cent. the disease is arrested; and here it should be borne in mind, that the delay which occurs in the admission of patients,

¹ First Medical Report of the Hospital for Consumption, 1849. An analysis of this Report was given at page 37 of our last number.

in consequence of the want of accommodation for the numbers who apply, allows the disease to advance, and thus renders the treatment more difficult and less successful than it would otherwise have been. Still, under such unfavourable circumstances, it is satisfactory to find, that in nearly 6 per cent. of the cases of this disease, considered by many to be beyond the reach of treatment, a result has been obtained, which a desire not to speak too confidently alone forbids to designate as cure." When I speak of treatment, I shall have occasion to show that still more favourable results were obtained in those cases where cod-liver oil was used; but the facts advanced in the preceding inquiry, and the statistical proofs now adduced, justify me in stating, that a close examination of this disease proves that it is not, as has been generally believed, utterly hopeless and incurable—a view which would paralyse all our efforts at treatment. Whilst, therefore, "we must pause, ere we in future pass the terrible sentence of no hope on the consumptive invalid",¹ it becomes also our duty to redouble our efforts to save such patients.

ANTAGONISTIC DISEASES.

The investigation of the favourable circumstances under which spontaneous recovery takes place, has scarcely received the attention it deserves.² There are, however, a few facts in reference to antagonistic diseases, which bear upon this point, and to which I must allude before entering upon the treatment.

Emphysema of the lungs is a disease which undoubtedly tends to prevent the development of tubercles, and a moderate degree of it must therefore favour recovery from Consumption. I have seen some cases which have convinced me of this; and the researches of Rokitansky and Hasse confirm what I have observed.

A gentleman, aged 38, who was of rather weak constitution, and had suffered slightly for a considerable time from cough and shortness of breath, became much worse in the end of September 1847, and soon after consulted me, with the usual symptoms of Consumption. He had very troublesome cough, with muco-purulent expectoration. He had become very thin and weak, and had also profuse perspirations at night; and to these symptoms was afterwards added hæmoptysis. There was increased clearness of sound on percussion; but this affecting the summit of the lungs chiefly, rendered it difficult to ascertain, by physical examination, to what extent tubercles might be deposited, though the symptoms left no doubt as to their presence. He had persistent pain in the left side of the chest, rather low down, and just below the level of the left nipple; where there were, while the spitting of blood lasted, a few bubbles of mucous rhonchus, indicating that this was the seat of the disease. Having observed the antagonistic effect of emphysema in other cases, I ventured, notwithstanding the apparently hopeless character of the symptoms to hold out some prospect of recovery. The spitting of blood was stopped by means of turpentine; and counter-irritation, by croton-oil liniment, and the use of sedatives, with expectorants, relieved

¹ WILLIAMS (C. J. B., M.D.) Cod-liver Oil in Consumption. LONDON JOURNAL OF MEDICINE, January 1849.

² BACON. "Homo naturæ minister et interpres tantum facit et intelligit quantum de naturæ ordine re vel mente observaverit, nec amplius scit aut potest."

the cough and difficulty of breathing, so that he was enabled to go to the country for change of air, and to take tonics. He returned in December, much improved; and though he has seldom been long free from cough altogether, yet he has enjoyed a fair share of health, considering that he has emphysema of the lungs, along with tubercles. He had some return of hæmoptysis at the beginning of this winter, after which he took cod-liver oil with much benefit.

In this case, I have no doubt that emphysema was a chief cause of preventing, and still continues to repress, the progress of the tubercular disease. I had also in the two following cases, where the patients died of another disease—inflammation of the lungs—an opportunity of observing the power of the same cause in retarding the advance of tubercular disease.

A seaman, aged 40, of muscular frame, was admitted under my care into the Northern Hospital, in a very advanced stage of inflammation of the lungs. It was ascertained that the acute attack was of recent occurrence, but that he had suffered from cough, more or less, for two years. He died the same evening; and, on examination, it was found that both lungs were emphysematous. The upper part of the left lung was highly so, and it was also very much puckered from an old cicatrix. Within this part a cavity was found, which was completely lined with a false membrane, and in progress of healing. Around this, and in other parts of the lung, there were tubercles, which seemed to have been deposited at different times, as some of them were small miliary tubercles, and others larger and hard, as if undergoing cretaceous transformation. The right lung was inflamed throughout; and, at the lower part, it was in a state of purulent infiltration, and at the summit, in a state of red hepatization. There were some tubercles in this lung also, and at the apex, a cavity lined with false membrane. The disease was evidently not in a progressive state in this case; this being proved by the dryness and hardness of the tubercles, one of which was as large as a nut, and by the lining of the cavities by a well-organized membrane. Nature was therefore evidently making an effort to repair the ravages of the disease; and we have seen that this coincided with a great amount of emphysema.

A man, aged 26, was admitted into the Infirmary last September, in a similarly advanced stage of pneumonia. On examination, it was found that there was intense bronchitis and lobular pneumonia affecting both lungs. There were tubercles in both lungs, and much emphysema. At the apex of the left, a cavity of considerable size was found, lined by a fine membrane, like that of the bronchial tubes, and there were two others, lined with a thick white membrane of a soft texture. The tubercular disease was evidently making but slow progress in this case also. (See also Laennec, *Emphysema*, Obs. VIII.)

Hasse observes, that "those much in the habit of examining the dead body, cannot but be struck with two circumstances: first, the almost invariable existence of emphysema in lungs which bear the characteristic marks of recovery from phthisis; and, secondly, the proportional rareness of tubercular deposits in emphysematous lungs. This would seem to show, that dilatation of the air-cells constitutes one of the conditions, under which the cure of phthisis is possible; and, again, that

it forms an obstacle to the development and progress of tubercle."¹ Rokitansky thinks that emphysema hinders the formation of tubercle, by inducing a state of venosity of the blood, in which it is imperfectly arterialized, and wanting in fibrin. To the same cause he attributes the rare occurrence of tubercle in those cases of disease of the heart and arteries which prevent the proper arterialization of the blood. His observations on the connexion of tubercle with other morbid states are of the deepest interest; and, if his explanation of the effect of emphysema and disease of the heart, in repressing the deposition of tubercle, were correct, we should see an object which we might seek directly to attain in treating tubercular diseases. I am, however, disposed to think that emphysema may have merely a local effect in preventing the formation of tubercle; for the quantity of blood circulating in the capillaries of an emphysematous portion of lung is much diminished, and hence we find that pneumonia is less apt to attack such parts. We have already alluded to Dr. C. J. B. Williams's opinion, that an undue flow or accumulation of blood, from congestion or inflammation, will hasten the maturation of tubercles, by exalting chemical affinities; while, on the other hand, they manifest little disposition to change, so long as they are kept free from superfluous moisture. In this way, emphysema may prevent their progress, by lessening the quantity of blood in the capillaries; and it is also worthy of observation, as supporting this view, that in some cases of phthisis, where the function of one lung has been arrested by perforation, the progress of the disease has (where the patient has recovered from the immediate effects of the accident) been for a considerable time arrested. Of this, some examples have been given by Dr. Stokes. If Rokitansky's view of the venosity of the blood retarding the advance of tubercles were correct, we should find the progress of the disease equally repressed in both lungs; but I believe that this occurs chiefly in that lung, the function of which is arrested; and indeed, if this were the true explanation, then tubercular deposition in the lungs, by impeding respiration, and thus causing a more venous state of the blood, should tend to arrest its own development.

The arrest of the development of tubercular disease of the lungs during pregnancy, is an important fact, and there are few medical men who have not had opportunities of observing it. About two years ago, I had under my care a young female, advanced towards the fourth month of pregnancy, in whom one lung was destroyed to nearly half its extent by cavities. She had obstinate diarrhoea, and was reduced to the last stage of emaciation and debility. Yet, as soon as she was made aware of being pregnant, it had such a cheering effect upon her, that she speedily began to recover, believing that all her illness arose from that cause; and thus the disease was arrested for a time. Rokitansky's mode of accounting for the antagonistic effect of pregnancy in Consumption, by referring it to the venosity of the blood, induced by the enlargement of the abdomen interfering with respiration, is too mechanical an explanation, and not at all satisfactory, as it is by no means proved that the blood is imperfectly arterialized during pregnancy. The demand for an increased supply of blood for the uterus and its contents, is a

¹ HASSE (C. E., M.D.) *Anatomical Description of the Diseases of the Organs of Circulation and Respiration*. Translated by W. E. Swaine, M.D. Sydenham Society. 1846. p. 313.

much more important change, through which we may endeavour to explain the arrest of the tubercular disease. It is a fact, that the blood, instead of becoming more venous, contains an augmented proportion of fibrin; and the growth of the fœtus seems not only to require this, but, by attracting it to itself from the lungs, to arrest the morbid process of nutrition in these organs.

There are some other diseases which are believed to be antagonistic to phthisis. Thus, Consumption is not common in situations where ague prevails. Rokitsky also thinks that bronchocele and rachitis prevent tubercular disease of the lungs.

TREATMENT OF CONSUMPTION.

The limits of this paper prevent me from entering into any extended observations on the treatment of this disease; and, as my chief object has been to prove that persons more frequently recover from Consumption than has been generally supposed, I shall confine my remarks, as much as possible, to an examination of those means which have been thought to have some power in promoting the absorption of tubercle, and I shall speak more particularly of the efficacy of cod-liver oil. There are, however, a few important *indications* which I shall first notice as briefly as possible.

Whatever may be the condition of the blood and of the capillary vessels, which determines the exudation or secretion of tubercular matter, there cannot be any doubt that debilitating causes, such as innutritious food, deficient exercise, and impure air, have a powerful influence in producing this disease. The researches which have been made in the present day in chemistry and physiology, have tended more and more to prove the connexion between deranged assimilation and many diseases; and in struma, Dr. Prout has observed that all the assimilating processes are at fault, but chiefly those which take place between the duodenum and the circulating system, and by which the chyle is converted into blood. It is also well worthy of notice, that tubercles may be produced in some of the lower animals by confining them in damp places, and feeding them on unwholesome food. This was done with rabbits by Drs. Baron and Jenner,¹ and by Dr. Carswell; and it is a fact of some importance, as well in reference to the curability of tubercular diseases by absorption, as in showing the power of good alimentation, that the tubercular disease has been removed by feeding them afterwards on more nutritious food. In some kinds of insects, too, it has been found that a tubercular deposit may be produced by feeding them on bad food, and repeatedly plunging them in cold water. The same influences operate on man; for Dr. Baly² has shown, that mental depression and confinement cause a remarkable increase in the mortality among the inmates of prisons, and that this is chiefly produced by Consumption and scrofula. Such facts show us the importance of hygienic means of treatment; and, viewed in connexion with the power of cod-liver oil in promoting the assimilation of the food, they prove to us forcibly the necessity of bringing the digestive organs into as healthy a state as possible, in order to effect the most perfect assimilation of light nutritious articles of diet.

¹ BARON on Tubercular Diseases.

² Medico-Chirurg. Trans. vol. xxviii, 1845.

We have already shown, that inflammation and tubercular deposition are allied processes; and the effect of local irritation, in producing Pulmonary Consumption, is exemplified in the frequency of the disease in persons whose occupations cause them to inhale silicious or metallic particles; and I have no doubt that the fact, noticed by Phillips, of Consumption being most prevalent in towns, and scrofula less so, while the reverse occurs in the country, arises, not, as he supposes, from any difference between these diseases, but, in a great measure, from the inhalation of particles of dust and smoke determining the deposition of tubercular matter in the lungs instead of the external parts. In all our efforts to cause the absorption of tubercles, it must, therefore, be a matter of primary importance to prevent irritation, and to remove inflammation or congestion of the lungs by the usual means—local depletion, and counter-irritation more especially. The action of all the depurating organs which purify the blood by removing from it the products of the worn-out tissues, should be promoted by the appropriate means; and, with the view of preventing catarrhal irritation at the earliest period, I believe that there is no means so effectual as washing the whole surface with tepid or cold salt and water, followed by friction, which excites the depurating function of the skin, fortifies it against the impression of cold, and acts as a general tonic.

The condition of the blood, as ascertained by Andral, and subsequently by Becquerel and Rodier, furnishes another important indication in the treatment of phthisis, and one which has been found practically useful. In the earliest stage, and perhaps in some cases also before the formation of tubercles, the proportion of globules is below the healthy standard: as the disease progresses the quantity falls; and in one case, Andral found the proportion as low as 72 parts in 1000 of blood. In this respect, Consumption bears a resemblance to chlorosis, and in the diminution of the red globules, we have, in the one disease as well as the other, an indication for the employment of chalybeate tonics. I may here observe that, though we have this diminution of the red globules, we are seldom able to discover a loud continuous murmur in the veins of the neck, which is so common a sign in chlorosis; This difference I account for, from there being in chlorosis not simply a diminution of the red globules, but also an increase of the aqueous part of the blood. The veins are thus kept in a state of tension, which is favourable to the production of the venous murmur. In Consumption, on the other hand, especially when the disease is in an active state, there is a diminution not merely of the globules, but of the whole quantity of blood in the system, which, with the relaxed state of the tissues arising from loss of flesh, prevent the degree of venous tension necessary for the full development of this murmur. When, however, the tubercular disease has become quiescent or has receded, I have sometimes observed the occurrence of a continuous murmur in cases where it had at first been absent; and this I have considered a favourable sign.

In the preceding part of the paper, we have endeavoured to show that there are three ways in which recovery from Consumption may take place; first, by the shrivelling of miliary tubercles; secondly, by the transformation of crude yellow tubercles into cretaceous or cal-

careous concretions; thirdly, by the healing of cavities. We have now, fourthly, to show that the results of treatment seem to prove that tubercles may be removed by absorption. We cannot, however, have ocular proof of this, and hence there has been doubt as to the possibility of the removal of tubercles in this way; but the facts I have still to adduce will tend still further to remove any doubt on this point.

The remedies which, I think, have most claim to our attention as agents capable of promoting changes in tubercular matter, are *mercury*, *iodine*, the *alkalis*, and *cod liver oil*.

As *mercury* is unquestionably the most powerful remedy we possess, for promoting absorption of the serous and fibrinous exudations of acute inflammation, we would naturally expect that it should have some power in causing absorption of tuberculous deposits; but it would seem that in proportion as they recede from and lose the characters of plastic organizable fibrin, they are less under the sorbefacient influence of this remedy; and in ordinary cases of Consumption, not distinctly produced by acute inflammation, mercury, though occasionally useful as an alterative, to promote the biliary and other secretions, is injurious when given so as to act upon the constitution—producing a debilitating effect, and hastening the softening of tubercles. In cases of chronic pneumonia, which hold an intermediate place between pneumonia and phthisis, I have employed the remedy in the latter way; and, if we had reason to believe that miliary tubercles existed in an early stage, I think we might be justified in using this remedy, with the view of promoting the mode of transformation described by Rokitansky. The local application of mercury is a powerful means of causing the absorption of indurated swellings, as, for example, of the joints; and, as we are now able in many cases to arrest the constitutional disease in Consumption, it becomes us to use every means likely to assist in the removal of the local disease also; and none appears likely to be of more service than mercurial inunction. Dr. C. J. B. Williams says, that he has successfully treated several cases, in which the signs and symptoms left him in no doubt as to the existence of tuberculous peritonitis, by ointment of iodide of mercury to the abdomen, together with iodide of potassium internally.

The preparations of *iodine* have some resemblance to mercury in their effects, but, unlike this remedy, they are not of any service in acute disease, but are more useful in causing the absorption of tubercular deposits, especially in glandular structures. The syrup of the iodide of iron is the preparation I have most frequently used, as it combines the absorbent properties of iodine with the tonic power of iron, and thus fulfils the indication in reference to the diminution of the globules of the blood. I regard it as one of the best tonics we can use in the early stage of the disease, and I think that I have seen the early symptoms of phthisis arrested by it in a few cases. It was, during last summer, the chief means of restoring to health a young gentleman, who, in addition to cough, and loss of flesh and strength, presented the signs of incipient tubercular deposit at the summit of the left lung—very slight dulness with some sibilant rhonchus. I prescribed it with very good effect in the case of a lady about thirty years of age, who came from some distance in the country to consult me, in July 1847. She had become thin and very liable to colds, and had some mucous expectoration. She had also

had an attack of spitting of blood three years previous. Some consolidation at the upper part of the right lung was indicated by slight but distinct dulness on percussion close to the sternum, and increased loudness of the cough and voice in the same spot; but there were no mucous or other rhonchi. She wished to remove to the South of England; but as the disease did not seem in an active state, I recommended hygienic means of treatment, to improve the general health. I also ordered syrup of the iodide of iron, with tincture of hyoscyamus in infusion of calumba, and inunction of iodide of lead ointment below the right clavicle. When I again saw her, five or six weeks after, I found her improved in health; and the signs of consolidation appeared, both to her ordinary medical man and myself, to have diminished considerably. She has since then enjoyed pretty good health, and has had two children, but during last pregnancy there was some return of hæmoptysis. After this, she took cod-liver oil for a considerable time, with benefit. The iodide of lead ointment I have used in other cases besides this, with the view of causing absorption of tubercular deposits in the lungs, on the same principle on which we use it in scrofulous glandular swellings. I think it better suited to produce such an effect than the application of a concentrated tincture of iodine, which is a powerful counter-irritant, and, as such, has been found "remarkably beneficial" at the Hospital for Consumption.

Before the introduction of iodine, the *alkalis* were regarded as remedies of considerable absorbent power. Liquor potassæ is a powerful alterative medicine, and it has sometimes been found to cause absorption of an enlarged gland even after iodine has failed. Dr. Campbell recommended it very strongly in phthisis; and Sir J. Clarke has observed, that the alkalis increase the urinary, and appear to promote the bilious secretion, and to render that of the mucous membranes more fluid: in whatever way they operate, they are certainly beneficial in many tuberculous affections.¹ Their power of promoting absorption of the lymph and other exudation products of inflammation of the lungs or pleura, especially when combined with iodine, is a fact of acknowledged practical value. Dr. Golding Bird² has communicated some most interesting and useful information as to the action of alkaline remedies; he calls them depurating or chemical diuretics, and has shown that, unlike most diuretics, they increase not only the fluid, but also the solid parts of the urine. This they do by a chemical action on the exhausted and worn-out tissues; and he thinks that parts of low vitality, such as tubercle, will be most readily acted on by these chemical agents. It is also worthy of notice, that the caustic alkalis are the most powerful solvents of tubercle; and it is therefore reasonable to suppose that they will retain a portion of that power, when circulating with the blood in the capillaries.

Cod-liver oil has been known as a remedy for Consumption and scrofula in Germany and the north of Europe for a considerable period, and Dr. Hughes Bennett³ has the merit of having brought it into notice in this country. Of the three kinds of oil, the pale, the light brown, and the

¹ Treatise on Pulmonary Consumption.

² Lectures on the Influence of Researches in Organic Chemistry on Therapeutics.

³ Treatise on the Oleum Jecoris Aselli. 1841.

brown, it has been thought in Germany that the darkest coloured is the most useful; and this opinion was supported by Dr. Bennett, and is still maintained by Dr. De Jongh. It seems, however, to be now sufficiently well ascertained, that the brown has no superiority over the pale oil. I have seen the best effects speedily produced by the purest specimens of pale oil. Dr. Williams used the pale oil prepared according to Donovan's method; and in the report of the Hospital for Consumption, it is stated that "different qualities of oil, have been tried without exhibiting any marked difference in the remedial effects; but the offensiveness of some of the darker kinds renders their general use impracticable."

The power of this remedy in controlling the progress of phthisis in a large proportion of cases, and even of arresting its progress in not a few, has now been completely established; and the Hospital for Consumption has even furnished us with statistical facts as to the results of treatment in each stage of the disease.

In Dr. Bennett's work, we are furnished with three cases, fully detailed, of decided Consumption, where recovery took place under the use of this remedy. In the appendix to the last edition, he says: "I have succeeded, in several cases, in ascertaining that the caverns have completely healed up, every symptom and physical sign indicating their presence has disappeared, and there has remained only slight dulness on percussion, and increased vocal resonance, as a proof of the puckering and induration of the pulmonary parenchyma attendant on the cicatrix." In proof of this statement, he relates two other cases. The most favourable account that has yet been given of the efficacy of cod-liver oil, is that published in this Journal by Dr. C. J. B. Williams, who states that of 234 cases of which he kept a record, there were no fewer than 206 in which its use was followed by marked and unequivocal improvement. The most numerous examples of decided and lasting improvement occurred in those cases in the second stage, where the tubercular matter was beginning to soften. He has given a full account of eleven cases in the third stage, the results of which may be stated as follows. In one case, a cavity seemed to have healed completely; in five, all the symptoms were removed and recovery took place, but dry cavities remained in the lungs; in one, it seemed probable that the restoration was even more complete; in one case, that of a child, recovery took place, but the existence of phthisis was somewhat doubtful; in one, the advance of the disease was stayed; in one, the patient recovered so far as to marry, but relapsed; and in one, after temporary recovery, the patient died.

From the report of the Hospital for Consumption, it appears, that this remedy has been productive of more good in the treatment of phthisis than any agent yet employed; and the results furnished by a table of 542 cases in which it was given, are highly interesting. The collective results in all the stages show, that in 63 per cent. the symptoms improved; in 18 per cent. the disease was arrested; and in 19 per cent. only, it went on unchecked. The report observes, that when it is recollected that of the whole number treated at the Hospital, the disease was arrested in only 5 per cent., the value of this remedy, under which the disease was arrested in 18 per cent., must be considered very great. Dr. Williams speaks most favourably of the oil in

the second and third stages, observing that, though not less satisfactory in the first than in these, it is slower in its action. This report, however, establishes the fact which we might naturally expect—that the greatest number of cases are arrested in the first stage. In nearly 18 per cent. of the males, and in 28 of the females, in the first stage, the disease was arrested; that is, in 293 cases of both sexes, it was arrested in 23 per cent. It was arrested in 14 per cent. of the cases of both sexes in the second and third stages.

What I have seen in my own practice fully confirms these statements; and in two of the cases which follow, II and III, the symptoms and physical signs showed as hopeless a condition as in any cases of Consumption I have ever seen, and indicated a speedily fatal termination, which, I am persuaded, nothing that we are yet acquainted with, except this remedy, could have averted.

Cod-liver oil has been called a tonic remedy, which it undoubtedly is; but it differs from other tonics, and indeed from most other remedies we are in the habit of giving in this disease, in one important respect,—that we may use it with advantage in every stage, and that there is scarcely any symptom which contra-indicates its employment. In general, the appetite speedily improves, the cough abates, the hectic fever diminishes, and the perspirations are arrested. The patient at the same time improves in colour, and gains strength and flesh. There are very few cases in which the pale oil cannot be taken; and if we begin with a tea or dessert spoonful, and gradually increase it to an ounce thrice a day, on the surface of peppermint water or milk, there are few persons who do not take it with facility, and become reconciled to it. When it causes nausea, naphtha or hydrocyanic acid will usually remove this symptom. We must not, however, trust exclusively to this remedy, but must give due attention to those general indications for treatment which have been pointed out. We should also remove any urgent symptoms, such as cough, by a sedative; and morphia is one of the best, given either in simple oxymel, or oxymel scillæ, where an expectorant is required. Local inflammatory action must also be removed by the usual means. Unless we are thus careful in removing prominent symptoms, and in bringing the digestive organs into a healthy state, so that the oil may be assimilated, we may fail in deriving from the remedy the benefit which it is capable of producing under judicious management. The following cases will illustrate these and some other points bearing upon the treatment.

CASE I. *First Stage. Removal of the Tubercular Deposit by Absorption.* Thomas Daly, aged 18, a sailor, was admitted into the Infirmary under my care, on the 1st of October 1849. He had suffered from cough three months previous, but recovered until seventeen days before admission, when he was seized with cough and pain in the left side of the chest. He was pale, emaciated, and weak. His breath was very short, and he had some trifling expectoration, but never had hæmoptysis. The sound, on percussion of both clavicles, was less clear than natural, and below the left clavicle it was decidedly dull. Close to the sternum, and an inch and a half below the clavicle, it had somewhat of the sound elicited from the trachea. In the same spot the respiration was blowing,

and I was at first disposed to think that there might be a cavity ; but the absence of gurgling and of purulent expectoration, showed that it was caused by tubercular deposit near the bronchus. There were no rhonchi on either side of the chest ; but below the left clavicle the respiration was harsh or bronchial, and the resonance of the voice and cough very loud. Blisters were applied to remove the pain in the left side ; and he took an ounce of cod liver oil thrice a day. He improved rapidly ; and on the 22nd, he had got fatter and stronger, though he was pale and still had cough. Some dry crackling was now heard below the left clavicle. On the 29th, this could no longer be heard, but respiration was interrupted in the same situation. It was observed, however, that the dulness and bronchial character of the respiration had somewhat lessened. He was now ordered to rub in the iodide of lead ointment upon the upper part of the chest. On the 8th November, he had become quite fat and much stronger, but was still pale. A continuous murmur was audible in the veins of the neck. He still had shortness of breath on ascending the stairs ; but the dulness and bronchial respiration had very decidedly diminished, and, in fact, were scarcely perceptible. With the view of increasing the red globules of the blood, the want of which seemed now to be as much the cause of the shortness of breath as the affection of the lungs, he was ordered to take twenty minims of the syrup of the iodide of iron, thrice a day, in place of the oil. On the 20th, he had not only grown fat, but had also acquired so healthy an appearance, that he would scarcely have been taken for an invalid. He still, however, had some pain below the cartilages of the false ribs on the left side, for which he was blistered. He remained in the hospital, and continued the syrup of iodide of iron, till the 14th December, when the presence of tubercular disease of the lungs could scarcely have been pronounced, with certainty, by any one who had not previously seen him.

REMARKS. The crackling heard in this case would seem to show that softening was just beginning to take place. The removal of the consolidation was chiefly due to the oil ; but there can be no doubt that it was also promoted by the inunction with iodide of lead, and by the iodide of iron. I have at present, under my care, a young man in whom the deposit is undergoing equally rapid absorption under the use of the oil, assisted by inunction with iodide of mercury ointment.

CASE II.¹ *Third stage, far advanced ; abscess of lung pointing externally.* A ship carpenter, aged 36, was admitted under my care in the Northern Hospital, on December 6th, 1848. More than twelve months previous, he had been attacked with spitting of blood, and other pulmonary symptoms which had never entirely left him. He was much emaciated, and had profuse perspirations ; he expectorated large quantities of puriform secretion of an offensive odour ; and, when he coughed, his breath was insupportably offensive, scarcely less so than in cases of gangrene. The left lung was extensively diseased. There was a great amount of dulness, extending from the clavicle into the mammary region. There was the gurgling of a large cavity below the left nipple. Below the clavicle, there was the gurgling of smaller cavities, as well as the

¹ Condensed from notes, for which I am indebted to Mr. Wall, the House-surgeon.

subcrepitant rhonchus, indicating extensive softening of tubercular matter. There were no decided indications of disease in the other lung. He was treated with mild mercurial aperients, and a sedative mixture for the cough; and as he had much pain in his left side, a blister was applied. On the 11th, cod liver oil was prescribed. Below the left nipple, where the large cavity was found, a fluctuating tumour formed, and was opened on the 14th. When he coughed, air was expelled along with matter, showing that the abscess communicated with the lung. He continued taking the oil till the 23rd, when he was somewhat better; but as it caused nausea it was omitted, and he took a mixture composed of creasote, oxymel of squills, and compound tincture of camphor, with great benefit; the abundant purulent expectoration being much lessened by it. On the 1st January, the cod liver oil was resumed, in two drachm doses; and in a fortnight from that time, he had improved in a remarkable manner, he had gained flesh, and considered himself half-a-stone heavier. His countenance had assumed a cheerful and more healthy appearance, and his skin had become soft and smooth. Though he had some return of the pain in the side, and the abscess was opened more than once, he continued to improve steadily after recommencing the oil. On the 4th of February, he had every appearance of health; the abscess had all but healed, his appetite was good, and the expectoration had almost ceased. There was considerable contraction of the left side of the chest, and a great amount of dulness. The lung had been extensively excavated; but the progress of the disease was now arrested, and instead of the gurgling and rhonchi indicating the passing of air through muco-purulent fluid, there was heard the dry blowing of air passing into empty cavities. On the 16th February, he considered himself capable of following his employment, and left the hospital to go to New York.

CASE III. *Third stage, far advanced.* Mr. W., aged 35, was seen by me, on the 2nd of February 1849, in consultation with Mr. Atcherley. The patient had been intemperate in his habits, and dated his illness from about the preceding Christmas. He was much emaciated, and had violent hectic fever. The pulse was above 120, and the perspirations were unusually profuse, continuing during the day as well as the night. He had no appetite, and the tongue was much loaded, but there was no diarrhoea. He was confined to bed, and had considerable œdematous swelling of the ankles—a symptom indicating great debility and an advanced stage of the disease. The cough was unusually violent and troublesome, and the expectoration was brought up with difficulty, and was of a tenacious muco-purulent character. The physical signs showed that the right lung was sound, but the left was extensively diseased. There was a great degree of dulness at the upper part, before and behind, and the gurgling and other signs of a cavity were heard in both situations. Over every other part of the lung, mucous and subcrepitant rhonchi, mixed with sibilant, indicated that extensive softening of tubercular matter was going forward. We resolved to make trial of cod liver oil, though we had little expectation of benefit in a case apparently so hopeless. Counter-irritation, with croton oil, was adopted, the diet was regulated, small doses of mercury with chalk and rhubarb were given, and an attempt was made to stop the perspirations with sulphuric acid. Sedative expectorants were at the same time given, to relieve the cough.

These means were, however, of but little service beyond preparing him for the use of cod liver oil, which he began to take on the 9th February. In a short time he began to recover; and some months after, Mr. Atcherley informed me that he had got stout and well. About the beginning of July, I had again an opportunity of examining him. He had then, for a long time, ceased taking any oil, but was still so stout that I could not have known him. He had at that time a slight return of cough, but had been nearly free from cough or expectoration, until a few days previous. The upper part of the left side of the chest was still dull on percussion, though less so than when I first saw him. Respiration was harsh and blowing, with some sibilant rhonchus, but there was none of the gurgling cavernous rhonchus; and towards the lower part of the lung, the breath sound was natural. The habits of this patient have been so intemperate, that he has not given himself a fair chance of recovery; and when I lately saw him, I did not find that any farther progress towards reparation of the local disease had been made.

CASE IV. *Third Stage.* Thomas Alpen, aged 40, was admitted into the Infirmary, on the 21st of June 1849. He had been a soldier more than twenty years, during which he had been ten years in the Mediterranean, three in the West, and four in the East Indies. Three months previous he had been much exposed to wet and cold, in enforcing the collection of rates in Ireland; and this brought on cough and other symptoms of Consumption, on account of which he was discharged from the service as incurable. He was much emaciated, and his whole appearance indicated phthisis. He had hot skin, profuse night perspirations, and abundant purulent expectoration. He had diarrhoea, the tongue was red at the tip and centre, and he had lost his appetite and strength. The physical signs were equally well marked. On percussion, the sound was very dull below the right clavicle. In this situation, there was cavernous respiration, mixed with loud gurgling, arising either from a large cavity, or from several communicating. He took cod-liver oil, in addition to some mixture, to relieve the cough, and improved very speedily under this treatment. On the 9th July, he had gained flesh, and improved in appearance. He had no night sweats, and very little cough or expectoration. The bowels continued rather loose, and the tongue reddish at the centre, but in all other respects he was better. There was loud blowing cavernous respiration, but no movement of fluid in the cavity could now be heard, except when he coughed violently. On the 17th, some astringent mixture was given to check the diarrhoea, and after its removal he improved most rapidly. On the 5th August he looked so stout and healthy, that no one, from his appearance, could have supposed that he had a cavity in the lung, or that he was ill at all. His appetite was good, his tongue clean, his pulse 88, his skin cool, his complexion healthy, respiration easy, no night sweats, scarcely any cough, expectoration scanty and no longer purulent, but consisting of only a greenish-yellow mucus. There was still dulness below the right clavicle, and considerable depression, with dry blowing respiration, and other signs of an empty cavity tending to collapse. The patient felt so well, that he did not wish to remain longer in the Infirmary.

I am prevented, by the length to which this paper has extended beyond

what I had anticipated, from relating other cases, in which equally good effects followed the employment of cod-liver oil. I have also at present under my care several very interesting cases, to one of which I may briefly allude, as I have satisfied myself of the healing of a cavity. The patient has been several months under my care, and has been ill nearly a year, with frequent attacks of spitting of blood. He has had dulness and signs of consolidation of the middle and lower part of the right lung, and those of a cavity towards the lower part laterally. The expectoration has been abundant, purulent, and fetid. The situation might cause some doubt of the cavity being tubercular; but the symptoms and progress of the case cause me to regard it as such. He has been treated according to the varying symptoms; the chief means used being counter-irritation, iodide of iron, and cod-liver oil. The latter disagreed at first; but after several trials it was borne by the stomach, and seemed to be digested, the patient observing, that it no longer "rose on his stomach." Since then, the dulness has diminished, the cough has nearly ceased, the expectoration has stopped, and the signs of a cavity, and of mucous or purulent secretion in its vicinity, have disappeared; while the patient has at the same time become stronger and stouter.

It will naturally be inquired, how far recovery is permanent, in cases where cod liver oil has been used with benefit. The question admits of being answered now; but it will be more fully and satisfactorily replied to, when we have had further experience of the remedy. We have shown that, before its introduction, pathological researches and stethoscopic examination had united in proving that recovery not unfrequently occurred in cases of tubercular disease of the lungs, and was so permanent that the patients afterwards died of other diseases. And I see no reason why it should be otherwise, in cases where the disease is arrested by treatment, than in those where it is arrested spontaneously, except that in the former it may often be more extensive. I have, therefore, no doubt that when the disease is arrested at an early period, the cure may often be rendered permanent; and it has been ascertained by different observers, that it is often so, and even in a few of the more advanced cases. The report of the Hospital for Consumption assumes very properly that, as in some cases under observation the improvement is permanent, it must also be so in many that have not returned.

Consumption will, however, necessarily continue a more or less fatal disease; but the treatment is open to much improvement, and I believe that the close attention which is now being devoted to it, will enable medical men to accumulate proofs of its permanent curability in an encouraging number of cases.

4. Morningside Terrace, Liverpool,
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